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In-hospital vaccination program for HIV+ patients: a single center experience

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Background

HIV patients remain at risk of acquiring infections, many of which are preventable by vaccination. In-hospital administration may facilitate access to vaccination programs.

Materials and Methods

According to international and Italian guidelines, vaccination program including PCV13, MenACYW, MenB, influenza (IIV), HAV, HBV and HPV-9, was offered to HIV patients on ART presenting for routine visits at San Paolo Hospital, Milan. Factors associated with program access and with exposure/immunization to HAV and HBV were investigated by uni- and multivariate logistic regression.

Results

From December 2017 to April 2019, 426 HIV patients received at least one vaccine dose. Distribution of administered doses for each vaccine is represented in Figure 1.

When compared to unvaccinated HIV patients in charge at our unit, patients accessing vaccination program were younger, more frequently male, MSM and had higher CD4 count (Table1). Multivariate logistic regression analysis partially confirmed these results (Table 2).

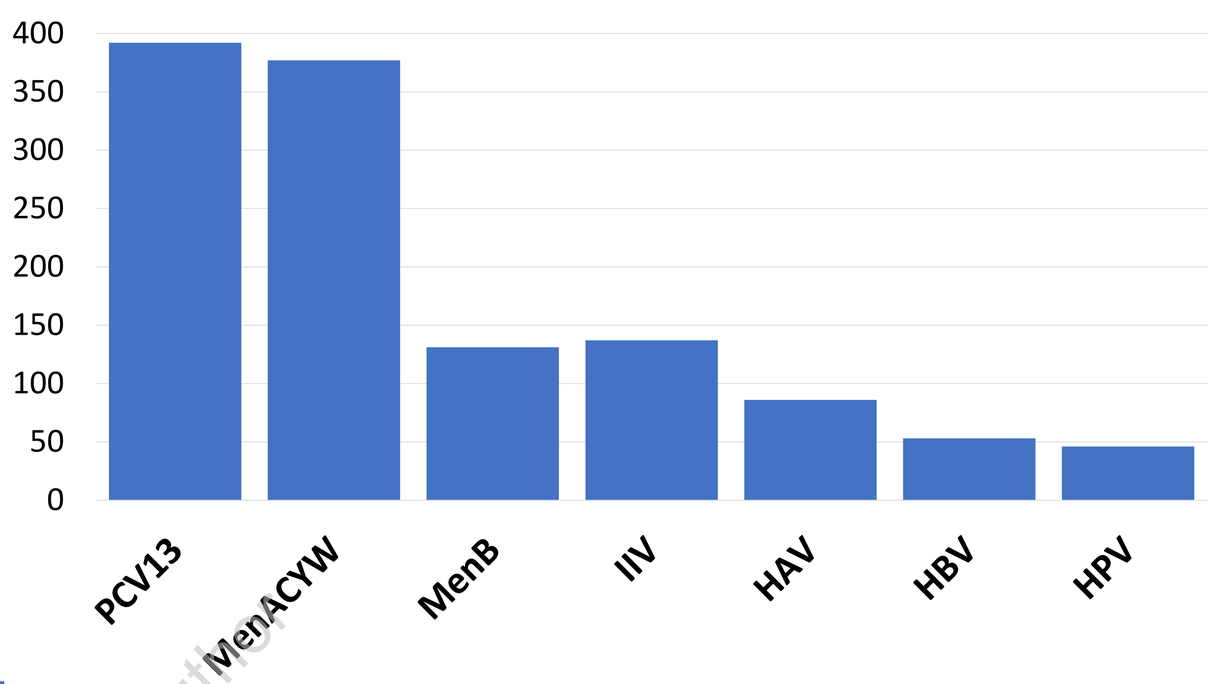

Figure 1. Distribution of administered doses by vaccine type

		Vaccinated patients (n=426)	Unvaccinated HIV population (n=801)	P
Age		46(38-54)	50(42-56)	<0.0001
Sex(female)		62(15%)	216(27%)	<0.0001
Nationality (Italian)		345(81%)	601(75%)	n.s.
CD4/ul		687(503-852)	613(431-816)	<0.0001
HIVRNA undetectable		328(77%)	617(77%)	n.s.
Previous AIDS		64(15%)	176(22%)	n.s.
Risk factor for HIV	Homosexual	247(58%)	264(33%)	<0.0001
	Heterosexual	107(25%)	320(40%)	<0.0002
	IDU	51(12%)	168(21%)	<0.0010

Table 1. Vaccinated and unvaccinated HIV population compared by demographical and virological characteristics

	Univariate analysis		Multivariate analysis	
	aOR	p	aOR	p
Age (per add. year)	0.9(0.9-0.9)	<0.0001	0.9(0.9-1)	<0.0001
Sex (female)	0.3(0.2-0.6)	<0.0001	0.6(0.4-0.9)	0.0200
Nationality (non –Italian)	0.8(0.5-1-1)	n.s.	0.7(0.5-1)	n.s.
Homosexual	2.8(2.1-3.7)	<0.0001	1.9(1.4- 2.7)	<0.0001

Table 2. Demografical factors associated with vaccination program access by uni- and multivariate analysis

As described in Table 3, among patients accessing vaccination, older age and non-Italian nationality were associated with HAVAb positivity; younger age was associated with previous HBV immunization; being older and HCV co-infected were associated with HBV exposure (HBcAb+).

Tab 3a	HAV vaccination/exposure	
	aOR HAV Ab +	p
Age (per add. Year)	1.0(1.0-1.1)	0.0040
Sex (male)	1.1(0.3-5.4)	n.s.
Nationality (non-Italian)	9.6(3.5-26)	<0.0001
HCV co-infection	1.0(0.4-2.4)	n.s.
Homosexual	0.7(0.3-1.5)	n.s.

Tab 3b	HBV vaccination	
	aOR HBsAb+ (HBcAb neg)	p
Age (per add.year)	0.9(0.8-0.9)	<0.0001
Sex (male)	1(0.3-3.6)	n.s.
Nationality (non-Italian)	0.5(0.2-1)	n.s.
HCV co-infection	0.9(0.1-1.1)	n.s.
Homosexual	1.2(0.9-2.7)	n.s.

Tab 3c	HBV exposure	
	aOR HBcAb +	p
Age (per add. year)	1.1(1.0-1.1)	<0.0001
Sex (male)	2(0.7-5.9)	n.s.
Nationality (non-Italian)	2.9(1.4-5.9)	n.s.
HCV co-infection	5.9(2.9-13.5)	<0.0001
Homosexual	1.7(0.8-3.7)	n.s.

Table 3. Adjusted odd ratios for HAV previous vaccination or exposure (3a), HBV vaccination (3b) and previous HBV exposure (3c) according to demographical characteristics of vaccination program patients.

Conclusion

Our in-hospital vaccination program for HIV patients didn't effectively reach most fragile subjects, such as older, non-Italian and female patients. Specific interventions for high risk individuals should be implemented. As expected, younger individuals were more often vaccinated for HBV and, conversely, older have been more often HBV exposed. Moreover, HAV exposure was more frequent in non-Italian subjects.